03-0718 04346+0016 -- Village of Naperville/Fmr. Nike C-70 SF/Tech (14)

CITY OF NAPERVILLE
MEMORANDUM

DATE: February 6, 2003

TO: Peter Burchard

FROM: Allan Poole

SUBJECT: **Letters from DuPage County Health Department, Illinois Environmental Protection Agency, and U.S. Department of the Army Corps of Engineers Concerning Knight's Subdivision and NIKE C-70 Missile Site Groundwater TCE Contamination**

PURPOSE:
To summarize key points in the recent letters received from the above three agencies relative to the actual and potential contamination of the groundwater aquifer and private wellwater in the Knight's Subdivision area by TCE from the former NIKE C-70 site.

BACKGROUND:
The U.S. Army Corps of Engineers (USACE) has accepted responsibility for TCE (Trichlorethylene) contamination of the shallow groundwater aquifer and many of the private groundwater well supplies in the Bauer Road – Knight's Subdivision area.

Since 1988 there has been a total of six environmental investigations at the former NIKE C-70 Missile Launching Site, with the most recent in July, 2002. To provide a safe reliable water supply to both the residents actually and potentially impacted the U.S. Army Corps of Engineers, the DuPage County Health Department, and the Illinois Environmental Protection Agency have all concluded that connection to the City of Naperville water supply is the proper action.

The USACE has an approved budget to pay for all costs associated with connecting 45 residences to the City of Naperville water system. This consists of 13 residences along Bauer Road and 32 residences within the Knight's Subdivision. For the Bauer Road residents this includes payment of all fees including an $18.00 per front footage charge for an existing City water main, our IAC, water meter, and inspection fees and all costs for new individual water service lines and proper abandonment and sealing of all private wells.

For the 32 Knight's Subdivision residences the USACE would construct a new water main and pay all of the previously mentioned fees (but not including a front footage charge).

The USACE and the 32 Knight's Subdivision residents are petitioning the City Council for water utility service without annexation as was granted by Ordinance #02-143 to the Bauer Road residents.

DISCUSSION:
Individual letters have been received from the DCHD, IEPA, and the USACE and are attached as Exhibits B, C & D. Exhibit A contains the pertinent comments from the 3 letters which were submitted to you at my request.

The DCHD and IEPA have clearly spoken as to the health concerns and risks and the need for a safe reliable supply, such as connection to the City of Naperville's water utility. Both agencies, the USACE and the homeowners would appear at a council meeting to address their concerns and seek approval for City water.

RECOMMENDATION:
It is recommended that the City Council discuss this matter at a future meeting with representation from the IEPA, DCHD, USACE and Knight's Subdivision (Jack Flowers, et al.).

james\memos\ltrs from dupage health dept usarmy2-6-03.doc

EXHIBIT A

DuPage County Health Department

Central Office
111 North County Farm Road
Wheaton, IL 60187-3988
Telephone: (630) 682-7979 x7216 Fax: (630) 462-9463
tkoeune@dupagehealth.org

January 24, 2003

- The DuPage County Health Department believes that the residents within and adjacent to Knights Subdivision with private wells as the source of their water supply are at risk due to TCE groundwater contamination.
- Furthermore, the level of TCE found in both private and sampling wells in and around Knights Subdivision is increasing as time goes on.
- The Health Department feels that the supply of water from a public water system for the people now utilizing private wells in the Knight Subdivision, and adjacent areas, is the best solution to eliminating the health risk from contaminated groundwater. information on TCE.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601
ROD R. BLAGOJEVICH, GOVERNOR RENEE CIPRIANO, DIRECTOR

January 29, 2003

- Residents of the unincorporated Knight's Subdivision use private drinking water wells as their potable water source and are located in the path of contaminated groundwater plume determined to be migrating south/southwest from the Nike C-70 site.
- .. Known concentrations of TCE in groundwater up to 70 times higher than the drinking water standard are migrating toward Knight's Subdivision. For these reasons, the Corps has taken a proactive approach and is offering to connect 13 residences along Bauer Road and 32 residences in Knight's Subdivision to the municipal water supply at no cost to the residents. Illinois EPA completely agrees that these residents should be provided an alternative drinking water source.
- The health effects of long-term use of well water with low levels of TCE may lead to impaired immune system function, increased risk of kidney or liver cancer, and other toxic effects. According to USEPA's latest evaluation, TCE is associated with several adverse health effects, including neurotoxicity, immunotoxicity, developmental toxicity liver toxicity, kidney toxicity, endocrine effects, and several forms of cancer. Mechanistic
- Finally, it should be understood that the residential wells themselves could be acting as a vector for vertical migration of the TCE contamination.
- One likely explanation put forth by the Corps is that TCE near the water table is migrating down the interstitial space (annulus) of improperly sealed residential wells. In order to prevent further degradation of the potable resource groundwater and unnecessary future ingestion of TCE contaminated groundwater, Illinois EPA advocates that all of the 45 residential wells in question be abandoned. This course of action may also help mitigate potential liability for environmental restoration resulting from the continuing degradation of the groundwater by these wells. The Corps agrees and plans to include well abandonment at their expense as a condition of connecting each of the residents to Naperville's municipal water supply.

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
P.O. BOX 59
LOUISVILLE, KENTUCKY 40201-0059

http://www.lrl.usace.army.mil

February 4, 2003

- Evaluation of the data has lead to the interpretation that the plume has migrated off-site and is collocated with the wells along Bauer Road and in the Knight's Subdivision (attached Figure 4-9). This information should fulfill Section 3.2, Article Three of Resolution No. 02-41. Because these residential wells may act as a vector for vertical migration, the Corps has determined that a significant health risk exists related to the current and future human consumption of water in the area (potential for a completed exposure pathway).
- the Corps in a proactive measure has agreed to pursue connecting the residents along Bauer and within Knight's Subdivision to City of Naperville water. In order to mitigate the vector for potential vertical migration, the Corps intends to abandon the residential wells during this effort.

DuPage County Health Department

Central Office
111 North County Farm Road
Wheaton, IL 60187-3988
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tkoeune@dupagehealth.org

EXHIBIT B

Thaddeus J. Koeune, M.S., R.S., L.E.H.P.
Director, Environmental Health Services

January 24, 2003

Peter Burchard
City Manager
City Of Naperville
400 S. Eagle
Naperville, Il 60566

RE: Knights Subdivision – Public Water Source

Dear Mr. Burchard:

The DuPage County Health Department believes that the residents within and adjacent to Knights Subdivision with private wells as the source of their water supply are at risk due to TCE groundwater contamination.

The presence of TCE was initially identified in groundwater on the property that was once the Army Nike C70 site. When it was realized that there were residential wells adjacent to the site, the Army Corps of Engineers initiated sampling of these wells. Water sample testing indicates that TCE levels above the Federal Drinking Water Standards have been found in water wells in Knights Subdivision as well as in the groundwater north, south and west of Knights Subdivision. Furthermore, the level of TCE found in both private and sampling wells in and around Knights Subdivision is increasing as time goes on.

The Health Department feels that the supply of water from a public water system for the people now utilizing private wells in the Knight Subdivision, and adjacent areas, is the best solution to eliminating the health risk from contaminated groundwater. Attached is information on TCE.

If you have any questions or need additional information, please contact Les Bant at (630) 682-7979 extension 5310.

Sincerely,

Thaddeus Koeune, R.S., M.S.
Director of Environmental Health Services

cc w/enc.
Melody Thompson, U.S. Army Corps of Engineers
Paul T. Lake, Illinois Environmental Protection Agency
Les Bant, Engineer, DuPage County Health Department
Leland Lewis, Executive Director, DuPage County Health Department

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601

ROD R. BLAGOJEVICH, GOVERNOR RENEE CIPRIANO, DIRECTOR

217/785-7728
FAX 782-3258

EXHIBIT C

January 29, 2003

Mr. Peter Burchard
City of Naperville
400 South Eagle Street
Post Office Box 3020
Naperville, Illinois 60566-7020

Re: Nike C-70 Groundwater Contamination
And the Knight's Subdivision

0434670016 – DuPage County
Naperville/Former Nike C-70
Superfund/Technical Files

Dear Mr. Burchard:

The purpose of this letter is to provide additional information requested by the City of Naperville in support of the United States Army Corps of Engineers' (USACE or Corps) plan to connect residents of the Knight's Subdivision to the City of Naperville public water supply system.

Over the past ten years, in partnership with the Illinois Environmental Protection Agency (Illinois EPA), the Corps has evaluated the environmental condition of a number of formerly used Department of Defense facilities in Illinois, including the former Nike C-70 Launch Site in Naperville. In fact, since 1988 there have been a total of six environmental investigations at Nike C-70, the most recent occurring in July 2002.

Residents of the unincorporated Knight's Subdivision use private drinking water wells as their potable water source and are located in the path of contaminated groundwater plume determined to be migrating south/southwest from the Nike C-70 site. The analytical results from numerous soil borings and 45 groundwater monitoring wells indicate that there may be as many as three separate plumes of 1,1,2-trichloroethylene (TCE) contaminated groundwater located on the former Nike C-70 property. TCE concentrations range from 37 to 360 micrograms per liter (ug/l or parts per billion (ppb)) on the C-70 property, with concentrations between 60 and 98 ppb immediately north of the boundary with Knight's Subdivision. TCE also has been found off-site to the northeast of C-70 (13-85 ppb) and off-site to the south/southwest of C-70 (100- 240 ppb). In order to provide better understanding of TCE distribution, Figure 4-9 from the Corps' Draft Groundwater Investigation Report is attached.

Residences along Bauer Road immediately south and west of Knight's Subdivision have had detections of TCE in their private wells with four houses above the Illinois Class I Groundwater Quality Standard of 5 ppb (35 Illinois Administrative Code 620.410). Known concentrations of TCE in groundwater up to 70 times higher than the drinking water standard are migrating toward Knight's Subdivision. For these reasons, the Corps has taken a proactive approach and is offering to connect 13 residences along Bauer Road and 32 residences in Knight's Subdivision to the municipal water supply at no cost to the residents. Illinois EPA completely agrees that these residents should be provided an alternative drinking water source.

The United States Environmental Protection Agency (USEPA) has set a level of 5 ppb for TCE in drinking water as the Maximum Contaminant Level (MCL) for public drinking water supplies pursuant to the Safe Drinking Water Act. USEPA added TCE to the list of contaminants regulated under the Safe Drinking Water Act in 1987 (see attached excerpt from the Federal Register). The 1987 FR Notice states that because TCE is a probable carcinogen, its MCL Goal (MCLG) is set at zero. USEPA sets the MCL as close to the MCLG as "feasible," taking costs and technology into consideration. USEPA determined that it was feasible to remove TCE down to a concentration of 5 ppb. This level, 5 ppb, was also the laboratory minimum detection capability in 1987. Illinois formally adopted the TCE MCL of 5 ppb as its Class I Groundwater Quality Standard for TCE in November 1991.

At other sites in Illinois with TCE contamination in private wells (Southeast Rockford, Lisle, Elsworth Industrial Park in Downers Grove), the Illinois Department of Public Health has recommended that owners of wells containing TCE at or greater than the MCL not use their wells as a source of drinking water. The health effects of long-term use of well water with low levels of TCE may lead to impaired immune system function, increased risk of kidney or liver cancer, and other toxic effects. According to USEPA's latest evaluation, TCE is associated with several adverse health effects, including neurotoxicity, immunotoxicity, developmental toxicity, liver toxicity, kidney toxicity, endocrine effects, and several forms of cancer. Mechanistic research indicates that TCE-induced carcinogenesis is complex, involving multiple carcinogenic metabolites acting through multiple modes of action. Under USEPA's proposed (1996, 1999) cancer guidelines, TCE can be characterized as "highly likely to produce cancer in humans," based upon limited evidence of carcinogenicity in human studies, sufficient evidence of malignant tumor formation in experimental animals and convincing relevant information that TCE acts through mechanisms that would likely cause cancer in humans. Please find USEPA's August 2001 External Review Draft Health Risk Assessment for TCE attached.

USEPA's latest assessment of TCE draws on 16 state-of-the-science papers published as a supplemental issue of Environmental Health Perspectives, plus some other key references. Accordingly, this assessment focuses on analysis and interpretation rather than a compilation of study results. More detailed information on the epidemiologic and experimental studies on TCE can be found in the state-of-the-science papers and in comprehensive reviews compiled by ATSDR (*Agency for Toxic Substances and Disease Registry, 1997, Toxicological Profile for*

Trichloroethylene, Atlanta: Agency for Toxic Substances and Disease Registry) and EPA (*1985, Health Risk Assessment Document for Trichloroethylene, Final Report, EPA/600/8-82/006F, Washington: U.S. Environmental Protection Agency, Office of Health and Environmental Assessment)* and EPA *(1987, Addendum to the Health Assessment Document for Trichloroethylene: Updated Carcinogenicity Assessment for Trichloroethylene. External Review Draft EPA/600/8-82/006FA, Washington: U.S. Environmental Protection Agency, Office of Health and Environmental Assessment).*

New and more stringent TCE toxicity information (oral non-cancer reference dose (RfD), inhalation non-cancer reference concentration (RfC) and a range of cancer slope factors) may be found in USEPA's latest assessment. The assessment has been through stage III of USEPA's Integrated Risk Information System (IRIS) review process, meaning that the new TCE assessment has been through external Science Advisory Board review and received favorable review. For this reason, USEPA does not expect the new toxicity values to change. However, the new toxicity values are not final USEPA numbers. It will be some time before the final IRIS file is completed for TCE.

Finally, it should be understood that the residential wells themselves could be acting as a vector for vertical migration of the TCE contamination. The TCE has been found only in the upper reaches of the potable aquifer in and around the former Nike C-70 site, with the exception of the residential wells along Bauer Road that are thought to be screened between 90 and 100 feet below ground surface. One likely explanation put forth by the Corps is that TCE near the water table is migrating down the interstitial space (annulus) of improperly sealed residential wells. In order to prevent further degradation of the potable resource groundwater and unnecessary future ingestion of TCE contaminated groundwater, Illinois EPA advocates that all of the 45 residential wells in question be abandoned. This course of action may also help mitigate potential liability for environmental restoration resulting from the continuing degradation of the groundwater by these wells. The Corps agrees and plans to include well abandonment at their expense as a condition of connecting each of the residents to Naperville's municipal water supply.

Should you have any questions regarding this letter, do not hesitate to contact me at (217) 785-7728 or by e-mail at Paul.Lake@epa.state.il.us.

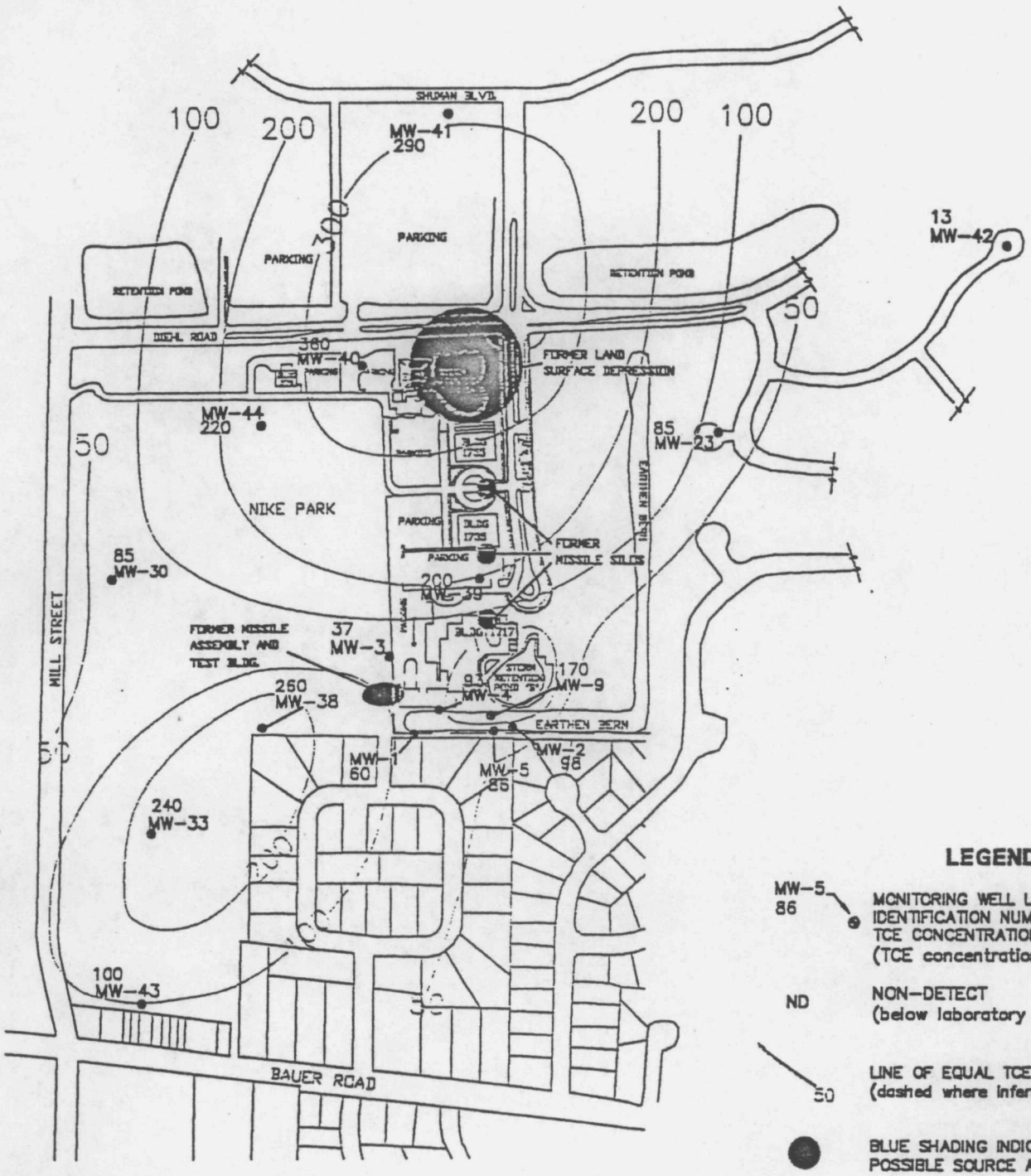
Sincerely,

Paul T. Lake, Remedial Project Manager
Federal Sites Remediation Section
Bureau of Land

Attachments: 1. Nike C-70 TCE Concentration Map
2. 1987 Federal Register Excerpt on TCE
3. TCE Health Risk Assessment (USEPA, August 2001)

PTL:h:\fuds\Nike C-70\residential hookup 012903

CF: Melody Thompson, USACE-LD
Douglas Buchanan, USACE-LD
Allan Poole, City of Naperville
Les Bant, DuPage County Health Department
Kathy Marshall, IDPH
Gary Schafer, USEPA
Jack Flowers, RAB Community Co-Chair



LEGEND

MW-5 / 86 — MONITORING WELL LOCATION AND IDENTIFICATION NUMBER AND TCE CONCENTRATION (TCE concentration in ug/L)

ND — NON-DETECT (below laboratory detection limit)

50 — LINE OF EQUAL TCE CONCENTRATION (dashed where inferred)

BLUE SHADING INDICATES POSSIBLE SOURCE AREAS

NOTES:

Drawing partially digitized and scanned from Maxim Tech. dwg.; Sept. 2000

Samples collected July 2002.

0 100 200 400

SCALE IN FEET

N

HYDRO VISION

TCE CONCENTRATION MAP
Upper Zone Shallow Aquifer
FORMER NIKE C-70 MISSILE BATTERY SITE
AND SURROUNDING AREA
Naperville, Illinois

Figure 4-9

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
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EXHIBIT D

February 4, 2003

Planning, Programs and
Project Management Division

Mr. Peter Bouchard
City Manager
City of Naperville
400 South Eagle Street
Naperville, IL 60566-7020

Dear Mr. Bouchard:

I am writing in response to a concern expressed by Allan Poole at the Restoration Advisory Board (RAB) meeting on January 22, 2003 for more information about the justification for connecting the potentially impacted residents in Knights Subdivision and along Bauer Road to City of Naperville water. I have been provided a copy of Resolution No. 02-41, A Resolution Approving an Intergovernmental Agreement for the Provision of Lake Michigan Water to Areas of DuPage County Affected By Contamination. In Section 3.2 of Article Three it states that "Notwithstanding the requirements of Section 3.2.a., the Commission may designate an area as a Primary Service Area if the engineer retained by the Commission determines that a significant life, safety, or health risk related to human consumption of water is posed in the area or is likely to be posed in the future." It also references as a stipulation that 50% of the sampled wells must have levels of a regulated chemical as determined by the National Primary Drinking Water Regulations. In the Draft Groundwater Investigation Report dated September 2002, Figure 4-9 (attached) shows that 100% of the monitoring wells screened in the upper water-bearing zone have Trichloroethylene (TCE) above the Maximum Contaminant Level (MCL) for public drinking water supplies pursuant to the Safe Drinking Water Act. The MCL for TCE is 5 ug/L and the values within the monitoring wells referenced above, range from 37 to 360 ug/L. It should be noted that these values are also above Illinois' Class I Groundwater Quality Standard of 5 ppb (Title 35 Ill. Adm. Code 620.410). These monitoring wells are located both on the Former C-70 property and offsite. Evaluation of the data has lead to the interpretation that the plume has migrated off-site and is collocated with the wells along Bauer Road and in the Knight's Subdivision (attached Figure 4-9). This information should fulfill Section 3.2, Article Three of Resolution No. 02-41. Because these residential wells may act as a vector for vertical migration, the Corps has determined that a significant health risk exists related to the current and future human consumption of water in the area (potential for a completed exposure pathway).

It is significant to note that 9 of the 43 residents involved in the Corps sampling program have had detectable levels of TCE in their wells. In addition, other contaminants have been detected in several other residents' wells, even though those values have not exceeded any regulatory thresholds. Given this information, the Corps in a proactive measure has agreed to pursue connecting the residents along Bauer and within Knight's Subdivision to City of Naperville water. In order to mitigate the vector for potential vertical migration, the Corps intends to abandon the residential wells during this effort. The proposed cost of the water main extension and subsequent connection to the residents is $773,361.14. The cost is based on actual contract award using a cost-plus contractual vehicle and does not include the costs associated with Corps of Engineers oversight. This action is

considered a part of the mitigation strategy for the entire site, and work will continue to further delineate the plume.

Specific questions regarding the derivation of the regulatory numbers should be addressed directly to either U.S. Environmental Protection Agency or the Illinois Environmental Protection Agency. As they are State and Federal Code, we are compelled to comply with these values. If you would like to meet to discuss the connection issue please contact me at (502) 315-6834. We can also make ourselves available for any upcoming City Council meetings.

Sincerely,

Melody A. Thompson
Project Manager
U. S. Army Corps of Engineers, Louisville

Cc:
Les Bant, DuPage Board of Health
Paul Lake, IEPA
Jack Flowers, Nike C-70 RAB